

CLAIMS

1. A probiotic composition comprising at least two lactic acid bacterial strains, c h a r a c t e r i z e d
5 in that said at least two lactic acid bacterial strains are able colonize the gastrointestinal tract of humans and animals and in combination have at least two beneficial properties, which are an intestinal survival property, an intestinal binding property, an infection protecting
10 property, and a fiber fermenting property, said at least two lactic acid bacterial strains being selected from the group comprising *Lactobacillus plantarum* F5 (LMG P-20604), *Lactobacillus plantarum* F26 (LMG P-20605), *Lactobacillus plantarum* 2592 (LMG P-20606), *Pediococcus penosaceus* 16:1
15 (LMG P-20608), and *Leuconostoc mesenteroides* 77:1 (LMG P-20607), *Lactobacillus plantarum* 50:1 (P-20609), and *Lactobacillus paracasei* (paracasei) F19 (LMG P-17806).

2. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said lactic acid bacterial
20 strains are viable bacteria of at least 10^{10} CFU/g.

3. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said intestinal survival property is ability to grow in the presence of bile.

4. A probiotic composition as in claim 1, c h a r - a c t e r i z e d in that said intestinal survival
25 property is ability to survive at a low pH.

5. A probiotic composition as in claim 4, c h a r - a c t e r i z e d in that said ability to survive at low pH is survival at low pH in the presence pepsin.

6. A probiotic composition as in claim 1 and 4, c h a r a c t e r i z e d in that said intestinal
30 survival property is ability to produce stress proteins.

7. A probiotic composition as in claim 6, c h a r - a c t e r i z e d in that said stress proteins cross-
35 react with heat shock proteins.

8. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said intestinal binding
property is ability to bind to mucin.

5 9. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said intestinal binding
property is ability to bind to extracellular matrix pro-
teins.

10 10. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said intestinal binding
property is ability to bind to glucosaminoglycans.

11. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said intestinal binding
property is ability to express cell surface hydrophobicity.

15 12. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said infection protecting
property is ability to produce bacteriocins.

13. A probiotic composition as in claim 12,
c h a r a c t e r i z e d in that said bacteriocins have
activity against grampositive bacteria.

20 14. A probiotic composition as in claim 12,
c h a r a c t e r i z e d in that said bacteriocins have
activity against gramnegative bacteria.

25 15. A probiotic composition as in claim 12,
c h a r a c t e r i z e d in that said bacteriocins have
activity against yeast.

16. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said infection protecting
property is ability to produce antioxidants.

30 17. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said infection protecting
property is ability to induce a pro-inflammatory cytokin
response.

35 18. A probiotic composition as in claim 1, c h a r -
a c t e r i z e d in that said fiber fermenting property
is ability to ferment amylopectin and inulin.

19. Use of a lactic acid bacterial strain, selected from the group comprising *Lactobacillus plantarum* F5 (LMG P-20604), *Lactobacillus plantarum* F26 (LMG P-20605), *Lactobacillus plantarum* 2592 (LMG P-20606), *Pediococcus*
5 *penosaceus* 16:1 (LMG P-20608), and *Leuconostoc mesenteroides* 77:1 (LMG P-20607), and *Lactobacillus plantarum* 50:1 (P-20609), alone or in combination, as a probiotic additive in food or feed.